

Claims

What is claimed is:

1 1. An object to control an operating state of a device, the device including a  
2 hardware component having a hardware operating state and a software  
3 component having a software operating state, the object comprising:

4 the hardware component operable to receive at least one hardware  
5 input, the at least one hardware input indicative of a target hardware  
6 operating state for the hardware component;

7 the software component operable to receive at least one software  
8 input, the at least one software input indicative of a target software  
9 operating state for the software component; and

10 a coordination component included in the software component, the  
11 coordination component operable to receive the at least one hardware  
12 and software inputs, the coordination component operable to control the  
13 operating state of the device in response to the target hardware operating  
14 state and the target software operating state.

1 2. The object of claim 1, wherein the coordination component is operable to  
2 control the operating state of the device by selecting one of four operating  
3 states, the four operating states comprising:

4 an S0 state, wherein the target hardware and software operating  
5 states are disabled;

6 an S1 state, wherein the target hardware operating state is  
7 disabled and the target software operating state is enabled;

8 an S2 state, wherein the target hardware operating state is enabled  
9 and the target software operating state is disabled; and

10 an S3 state, wherein the target hardware and software operating  
11 states are enabled.

- 1     3.     The object of claim 2, wherein the device is electrically coupled to an  
2           information handling system, wherein the device is selected to operate in a  
3           predefined state after a startup of the information handling system.
- 1     4.     The object of claim 1, wherein causing a change in the target hardware or  
2           software operating state causes a change in the operating state of the device.
- 1     5.     The object of claim 1, wherein a change in the operating state of the device  
2           causes the hardware and software components to generate a feedback to an  
3           information handling system, the device being included in the information  
4           handling system.
- 1     6.     The object of claim 5, wherein:  
2               the hardware component is operable to generate at least one  
3           hardware output in response to receiving the at least one hardware input, the  
4           at least one hardware output providing the feedback indicative of the  
5           operating state of the device;  
6               the software component is operable to generate at least one software  
7           output in response to receiving the at least one software input, the at least  
8           one software output providing the feedback indicative of the operating state  
9           of the device; and  
10               the coordination component operable to control the operating state of  
11           the device by selecting the device to operate in an enabled operating state in  
12           response to the target hardware and software operating states being  
13           enabled, and selecting the device to operate in a disabled operating state in  
14           response to the target hardware or software operating states being disabled.
- 1     7.     The object of claim 6, wherein the enabled operating state is an S3 state, and  
2           the disabled operating state is an S0, S1 or S2 state.

- 1 8. The object of claim 6, wherein the at least one hardware output includes a  
2 light emitting diode (LED) output, a sound output or a sensory feedback  
3 generating device.
- 1 9. The object of claim 6, wherein the at least one software output includes a  
2 graphical user interface (GUI) element, an icon, a soft light emitting diode  
3 (LED) output, a returned parameter or a handle to a calling software program.
- 1 10. The object of claim 1, wherein the software component includes:  
2 a software driver program providing an interface between the device  
3 and an information handling system, the information handling system  
4 including the device, the software driver program being operable to receive a  
5 first software control input included in the at least one software input and  
6 generate a first software output included in the at least one software output,  
7 the first software output being indicative of the operating state of the device;  
8 and  
9 a user interface (UI) program providing feedback to the information  
10 handling system, the UI program being operable to receive a second software  
11 control input included in the at least one software input and generate a  
12 second software output included in the at least one software output, the  
13 second software output being indicative of the operating state of the device.
- 1 11. The object of claim 1, wherein the target software operating state is changed  
2 by changing the at least one software input, wherein the at least one software  
3 input is changed by a call made to a software program included in an  
4 information handling system, wherein the information handling system  
5 includes the device.

1 12. The object of claim 1, wherein the target hardware operating state is changed  
2 by changing the at least one hardware input, wherein the at least one  
3 hardware input is changed by an operation of a switch or signal.

1 13. The object of claim 1, wherein the device is a communications device.

1 14. The object of claim 13, wherein the communications device is a wireless  
2 radio.

1 15. The object of claim 14, wherein a transmitter and receiver included in the  
2 wireless radio is separately controlled.

1 16. The object of claim 1, wherein the operating state of the software component  
2 and the operating state of the hardware component is saved during a change  
3 of an operating state of an information handling system, wherein the  
4 information handling system includes the device.

1 17. An information handling system comprising:

2 a processor;

3 a system bus;

4 a memory coupled to the processor through the system bus; and

5 a device coupled to the processor and the memory through the system

6 bus, wherein the device includes a hardware component having a hardware

7 operating state and a software component having a software operating state,

8 wherein the object includes:

9 the hardware component operable to receive at least one

10 hardware input, the at least one hardware input indicative of a target

11 hardware operating state for the hardware component;

the software component operable to receive at least one software input, the at least one software input indicative of a target software operating state for the software component; and  
a coordination component included in the software component, the coordination component operable to receive the at least one hardware and software inputs, the coordination component operable to control the operating state of the device in response to the target hardware operating state and the target software operating state.

18. The system of claim 17, wherein the device is a communications device.

19. A method for controlling a device, the method comprising:

initializing the device upon startup by placing the device in a predefined operating state, the predefined operating state being selected as an S3 operating state, wherein a hardware component and a software component of the device are enabled;

transitioning the device from the S3 state to an S1 operating state in response to the hardware component being disabled and returning from the S1 state to the S3 state in response to the hardware component being enabled;

transitioning the device from the S3 state to an S2 operating state in response to the software component being disabled and returning from the S2 state to the S3 state in response to the software component being enabled;

transitioning the device from the S1 operating state to an S0 operating state in response to the software component being disabled and returning from the S0 state to the S1 state in response to the software component being enabled; and

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18                   transitioning the device from the S2 operating state to an S0 operating  
19                   state in response to the hardware component being disabled and returning  
20                   from the S0 state to the S2 state in response to the hardware component  
21                   being enabled.

1   20.   In the method of claim 19, wherein the device is a communications device.

1   21.   In the method of claim 19, wherein rules defining the transitioning between  
2           any two operating states are modifiable in the communications device.